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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,639	07/24/2003	Hiroki Kaneko	520.42879X00	8077

20457 7590 05/17/2006

ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-3873

EXAMINER

BECK, ALEXANDER S

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/625,639	KANEKO ET AL.	
	Examiner	Art Unit	
	Alexander S. Beck	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-10,12-14 and 17-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10,12-14 and 17-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Acknowledgement is made of the amendment filed by the Applicant on February 23, 2006, in which: Claims 1-3,5,8,9 and 13 are amended; Claims 7,11,15 and 16 are cancelled; and new Claims 19-27 are added. **Claims 1-6,8-10,12-14 and 17-27 are currently pending in U.S. Application Serial No. 10/625,639, and an Office Action on the merits follows.**

### ***Response to Arguments***

2. After carefully considering the arguments filed on February 23, 2006, it appears that the "uneven surface" of IKEDA discussed in the non-final Office Action mailed on November 28, 2005 has been interpreted as the single visible protrusion per pixel seen in **FIGS. 1-5A**, and only the single visible protrusion.

However, as cited in the rejections of Claims 1 and 6, and later referenced in Claim 8, the "uneven surface" of IKEDA includes the teachings in column 4, lines 8-34 (i.e., the single visible protrusion per pixel discussed above) and the teachings in column 9, lines 7-17 (i.e., a roughened uneven surface of the electrode or a light scattering layer formed on the electrode).

Therefore, both passages of IKEDA cited above teach/suggest multiple protrusions provided on each pixel (wherein the roughed surface of the electrode or light scattering layer formed on the electrode will inherently comprise a plurality of bumps/protrusions).

### ***Claim Rejections - 35 USC § 112***

3. **Claims 2,4-6,8,9,13,14,17-22 and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Independent**

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Claim 13 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, independent Claim 13 recites the first electrode having an uneven surface comprising a plurality of bumps and having a network structure with a window in each pixel. There is no disclosure in the specification of the first electrode having both an uneven surface comprising a plurality of bumps and having a network structure with a window in each pixel.

Rather, the specification teaches a first electrode having a network structure with a window in each pixel and a second electrode having an uneven surface comprising a plurality of bumps.

For the purposes of an art rejection, the limitations of independent Claim 13 will be searched, examined and addressed as supported by the written description of the instant application (i.e., a first electrode having a network structure with a window in each pixel and a second electrode having an uneven surface comprising a plurality of bumps).

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**5. Claims 1-6,8-10,12-14 and 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.* (U.S. Patent No. 6,897,996 B2, hereinafter IKEDA) in view of *Johnson et al.* (U.S. Publication No. 2002/0167480 A1, hereinafter JOHNSON).**

As to independent **Claim 1**, IKEDA teaches/suggests an electrophoretic display comprising a first (1) and second (2) substrates each being disposed with a predetermined gap therebetween; a layer comprising an insulating solvent (4) and charged particles (5) dispersed in the insulating solvent, the layer being sandwiched between the substrates; a first electrode (7) disposed on one of the substrates; and a second electrode (6) disposed on the second substrate, wherein the second electrode is provided with a reflector function with uneven surface comprising a plurality of bumps in each pixel (IKEDA: column 4, lines 8-34; column 9, lines 7-17; column 10, lines 55-60).

IKEDA does not disclose expressly wherein the first electrode is disposed on the first substrate and the second electrode is disposed on the second substrate in such a manner that the first and second electrodes are opposite to each other.

JOHNSON, analogous in art with IKEDA, teaches/suggests an electrophoretic display wherein two first electrodes (6,6') are provided on a first substrate (12) and a second electrode (7) is provided on a second substrate (11) in such a manner that the first and second electrodes are opposite to each other (JOHNSON: page 2, paragraphs [0031-0035]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electrophoretic display of IKEDA such that the first electrode comprised two electrodes and was disposed on a substrate opposite to that of the second electrode, as taught/suggested by JOHNSON.

The suggestion/motivation for doing so would have been to realize intermediate optical states via electric voltages on the supplementary first electrode (6') (JOHNSON: page 2, paragraph [0031]).

As to **Claim 3**, IKEDA teaches/suggests wherein the second electrode is in cooperative relation with the reflector (IKEDA: column 4, lines 8-34; column 9, lines 7-17).

As to **Claim 10**, IKEDA teaches/suggests wherein the charged particles have a low reflection ratio, its color being substantially black (IKEDA: column 5, line 54 – column 6, line 51).

As to **Claim 12**, IKEDA teaches/suggests wherein active elements **10** are disposed on the second substrate (2) to display picture images by active matrix drive (IKEDA: column 7, lines 25-27).

As to independent **Claim 13**, most of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 1, with the exception of: the first electrode having a network structure with a window in each pixel.

IKEDA as modified by JOHNSON teaches/suggests the first electrode comprising two electrodes (6,6') isolated from one another on the same substrate, and the area between the

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two electrodes on the first substrate reads on a "window" in each pixel (JOHNSON: page 2, paragraphs [0031-0035]).

As to **Claim 14**, most of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claims 1, 3 and 13, with the exception of: the bumps of the uneven surface are present in the windows of the network structure of the first electrode.

IKEDA teaches/suggests wherein the region of the protrusion is determined according to the portion where the electric strength needs to be intensified between first and second electrodes (IKEDA: column 4, lines 8-34), and is therefore inherent that the combined teachings of IKEDA and JOHNSON, as previously combined in the rejection of Claims 1 and 13 above, would result in the bumps (e.g., protrusions) of the uneven surface present in the windows of the network structure of the first electrode because the protrusions are located in regions in which there are no first electrodes disposed directly above (i.e., a window) so as to intensify the electric strength.

As to **Claim 17**, IKEDA as modified by JOHNSON teaches/suggests wherein separate electrode segments constitute the first electrode (JOHNSON: page 2, paragraphs [0031-0035]).

IKEDA does not disclose expressly the segments in the same pixel being on the same potential.

JOHNSON teaches/suggests wherein separated electrode segments (6,6') constitute the first electrode, the segments in the same pixel being on the same potential (JOHNSON: page 2, paragraphs [0031-0035]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the electrophoretic display of IKEDA and JOHNSON such that the separate electrode segments that constitute the first electrode and the segments in the same pixel were on the same potential, as taught/suggested by JOHNSON.

The suggestion/motivation for doing so would have been to realize intermediate optical states via electric voltages on the supplementary first electrode (6') (JOHNSON: page 2, paragraph [0031]).

As to **Claim 18**, IKEDA teaches/suggests wherein active elements (10) are disposed on the second substrate (2) to display picture images by active matrix drive (IKEDA: column 7, lines 25-27).

As to **Claim 19**, IKEDA teaches/suggests wherein the uneven surface of the reflector comprises a plurality of bumps and concaves (IKEDA: column 4, lines 8-34; column 9, lines 7-17; column 10, lines 55-60).

As to **Claim 2**, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode comprises a plurality of segments and is disposed on the first substrate (JOHNSON: page 2, paragraphs [0031-0035]).

As to **Claim 4**, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed above the uneven surface (e.g., roughened surface) of the second electrode (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).



As to **Claim 6**, IKEDA teaches/suggests wherein the uneven surface (i.e., the roughened uneven surface of the electrode or the light scattering layer formed on the electrode) is patterned at random (IKEDA: column 9, lines 7-17) (i.e., randomly covered with grooves, bumps, protrusions, rivets, etc.)

As to **Claim 8**, IKEDA teaches/suggests wherein the uneven surface has a string structure of continuous bumps (IKEDA: column 4, lines 8-34).

As to **Claim 9**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 17.

As to **Claim 27**, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed in areas between the bumps (i.e., visible protrusion in figures) (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).

As to **Claim 5**, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed in areas corresponding to the flat portions (e.g., between protrusions) of the uneven surface of the second electrode (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).

As to **Claim 20**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 2.

As to **Claim 21**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 5.

As to **Claim 22**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 8.

As to independent **Claim 23**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding independent Claims 1 and 13.

As to **Claim 24**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 5.

As to **Claim 25**, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 8.

As to **Claim 26**, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode and the second electrode are formed on different substrates (JOHNSON: page 2, paragraphs [0031-0035]).

IKEDA teaches/suggests wherein the second electrode reflector is formed on the other substrate by way of an insulator (8) (IKEDA: column 5, lines 14-21).

**Conclusion**

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Alexander S. Beck** whose telephone number is **(571) 272-7765**. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Sumati Lefkowitz** can be reached on **(571) 272-3638**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

asb  
5/10/06

  
**SUMATI LEFKOWITZ**  
**SUPERVISORY PATENT EXAMINER**